

IN THE CLAIMS:

Please substitute the following listing of claims for the previous listing of claims:

1-56. (Cancelled)

57. (Currently amended) An inhaleable powder composition comprising a plurality of particulate microstructures, the particulate microstructures comprising:

- (a) a structural matrix comprising consisting essentially of phospholipid and calcium, wherein the particulate microstructures comprise greater than about 50% phospholipid;
- (b) an active agent;
- (c) a mean geometric diameter of 1-30 microns;
- (d) a mean aerodynamic diameter of less than 5 microns; and
- (e) a bulk density of less than about 0.5 g/cm³.

58. (Cancelled)

59. (Previously Presented) The composition of claim 57 wherein the particulate microstructures are porous and have a mean porosity of 0.5 - 80%.

60. (Previously Presented) The composition of claim 59 wherein the particulate microstructures have a mean porosity of 2 - 40%.

61. (Previously Presented) The composition of claim 60 wherein the particulate microstructures have a mean pore size of 20 – 200 nm.

62. (Previously Presented) The composition of claim 57 wherein the fine particle fraction of the particulate microstructures in the composition is greater than 20% w/w.

63. (Previously Presented) The composition of claim 62 wherein the fine

particle fraction of the particulate microstructures in the composition is from about 30% to 70% w/w.

64. (Previously Presented) The composition of claim 57 wherein the particulate microstructures comprise a bulk density of less than 0.1 g/cm³.

65. (Previously Presented) The composition of claim 64 wherein the particulate microstructures comprise a bulk density of less than 0.05 g/cm³.

66. (Previously Presented) The composition of claim 57 wherein the particulate microstructures comprise perforated microstructures.

67. (Previously Presented) The composition of claim 57 wherein said particulate microstructures comprise hollow microspheres.

68. (Previously Presented) The composition of claim 57 wherein the particulate microspheres comprise a shell with a thickness of 0.1 - 0.5 µm.

69. (Previously Presented) The composition of claim 57 wherein the particulate microstructures comprise a mean aerodynamic diameter of between 0.5 µm and 5 µm.

70. (Previously Presented) The composition of claim 57 wherein the particulate microstructures comprise a mean geometric diameter of less than 10 microns.

71. (Previously Presented) The composition of claim 70 wherein the particulate microstructures comprise mean geometric diameter is less than 5 microns.

72. (Previously Presented) The composition of claim 57 wherein the phospholipid comprises a gel to liquid crystal transition temperature of greater than 40° C.

73. (Previously Presented) The composition of claim 57 wherein the phospholipid comprises a zwitterionic phospholipid.

74. (Previously Presented) The composition of claim 57 wherein the phospholipid comprises at least one of dilauroylphosphatidylcholine, dioleoylphosphatidylcholine, dipalmitoylphosphatidylcholine, disteroylphosphatidylcholine dibehenoylphosphatidylcholine, diarachidoylphosphatidylcholine and combinations thereof.

75. (Previously Presented) The composition of claim 57 wherein the active agent is a bioactive agent.

76. (Previously Presented) The composition of claim 75 wherein the bioactive agent comprises at least one of antiallergics, bronchodilators, pulmonary lung surfactants, analgesics, antibiotics, antiinfectives, leukotriene inhibitors or antagonists, antihistamines, antiinflammatories, antineoplastics, anticholinergics, anesthetics, anti-tuberculars, antivirals, fungicides, immunoactive agents, vaccines, immunosuppressive agents, imaging agents, cardiovascular agents, enzymes, steroids, DNA, RNA, viral vectors, antisense agents, proteins, peptides and combinations thereof.

77. (Previously Presented) The composition of claim 75 wherein the bioactive agent comprises at least one of fentanyl, morphine, lung surfactant, leuprolide, interferon, insulin, budesonide, formoterol, goserelin, and growth hormones.

78. (Previously Presented) The composition of claim 75 wherein the bioactive agent is an aminoglycoside antibiotic.

79. (Previously Presented) The composition of claim 75 wherein the bioactive agent is a fungicide.

80. (Currently amended) A composition comprising a plurality of particulate microstructures, the particulate microstructures comprising:

- (a) a structural matrix comprising consisting essentially of phospholipid and calcium, the phospholipid comprising a gel to liquid crystal transition temperature of greater than 40°C, wherein greater than about 50% of the particulate microstructures comprise phospholipid;
- (b) an active agent;
- (c) a mean geometric diameter of 1-30 microns;
- (d) a mean aerodynamic diameter of less than 5 microns; and
- (e) a bulk density of less than about 0.5 g/cm³.

81. (Cancelled)

82. (Previously Presented) The composition of claim 80 wherein the particulate microstructures are porous and have a mean porosity of 0.5 - 80%.

83. (Previously Presented) The composition of claim 82 wherein the particulate microstructures have a mean porosity of 2 - 40%.

84. (Previously Presented) The composition of claim 82 wherein the particulate microstructures have a mean pore size of 20 – 200 nm.

85. (Previously Presented) The composition of claim 80 wherein the fine particle fraction of the particulate microstructures in the composition is greater than 20% w/w.

86. (Previously Presented) The composition of claim 85 wherein the fine particle fraction of the particulate microstructures in the composition is from about 30% to 70% w/w.

87. (Previously Presented) The composition of claim 80 wherein the particulate microstructures comprise a bulk density of less than 0.1 g/cm³.

88. (Previously Presented) The composition of claim 87 wherein the particulate microstructures comprise a bulk density of less than 0.05 g/cm³.

89. (Previously Presented) The composition of claim 80 wherein the particulate microstructures comprise perforated microstructures.

90. (Previously Presented) The composition of claim 80 wherein said particulate microstructures comprise hollow microspheres.

91. (Previously Presented) The composition of claim 80 wherein the particulate microspheres comprise a shell with a thickness of 0.1 - 0.5 µm.

92. (Previously Presented) The composition of claim 80 wherein the particulate microstructures comprise a mean aerodynamic diameter of between 0.5 µm and 5 µm.

93. (Previously Presented) The composition of claim 80 wherein the particulate microstructures comprise a mean geometric diameter of less than 10 microns.

94. (Previously Presented) The composition of claim 93 wherein the particulate microstructures comprise mean geometric diameter is less than 5 microns.

95. (Previously Presented) The composition of claim 80 wherein the phospholipid comprises a gel to liquid crystal transition temperature of greater than 40° C.

96. (Previously Presented) The composition of claim 80 wherein the phospholipid comprises a zwitterionic phospholipid.

97. (Previously Presented) The composition of claim 80 wherein the phospholipid comprises at least one of dilauroylphosphatidylcholine,

dioleoylphosphatidylcholine, dipalmitoylphosphatidylcholine, disteroylphosphatidylcholine dibehenoylphosphatidylcholine, diarachidoylphosphatidylcholine and combinations thereof.

98. (Previously Presented) The composition of claim 80 wherein the active agent is a bioactive agent.

99. (Previously Presented) The composition of claim 98 wherein the bioactive agent comprises at least one of antiallergics, bronchodilators, pulmonary lung surfactants, analgesics, antibiotics, antiinfectives, leukotriene inhibitors or antagonists, antihistamines, antiinflammatories, antineoplastics, anticholinergics, anesthetics, anti-tuberculars, antivirals, fungicides, immunoactive agents, vaccines, immunosuppressive agents, imaging agents, cardiovascular agents, enzymes, steroids, DNA, RNA, viral vectors, antisense agents, proteins, peptides and combinations thereof.

100. (Previously Presented) The composition of claim 98 wherein the bioactive agent comprises at least one of fentanyl, morphine, lung surfactant, leuprolide, interferon, insulin, budesonide, formoterol, goserelin, and growth hormones.

101. (Previously Presented) The composition of claim 98 wherein the bioactive agent is an aminoglycoside antibiotic.

102. (Previously Presented) The composition of claim 98 wherein the bioactive agent is a fungicide.